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AUTHOR Gottfredson, Gary D.
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ABSTRACT

Holland's original environmental formulations proposed that an environment's influence was transmitted through its inhabitants: environments could be classified by the predominant personality type of their inhabitants. But the approach to environmental assessment that relies on a census of inhabitants is only one approach, job analysis is another. The principal prediction that Holland's theory makes about person-environment interactions is that beneficial outcomes follow from congruency between the person and the environment. Congruence leads to stability and incongruence leads to change. Several empirical studies have been conducted which provide evidence on Holland's predictions about person-environment interactions. Although it is expected that some environments exert more influence than others, no satisfactory explanations of the sources of such differences are available. Holland has suggested assessing the consistency, differentiation, and identity of the environment. An alternative set of speculations about the determinants of environmental influence makes use of the notion of proximity. The proximity of an environment refers to the probability that it will reward or punish behaviors. A proximate environment is one in which rewards for behaviors congruent with the environment or punishments for incongruent behavior occur with high probability. The use of the notion of proximity helps to make sense of some disparate results in tests of the congruence hypotheses. (NRB)

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Holland's Theory and Person-Environment Interactions

Gary D. Gottfredson

Center for Social Organization of Schools

Johns Hopkins University

3505 N. Charles Street

Baltimore, Maryland 12128

(301) 338-7568

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Holland's Theory and Person-Environment Interactions

Abstract

Discusses the origins and evolution of Holland's environmental classification, and shows how the theoretical formulations corresponding to the empirical classifications allow for alternative methods of classifying environments. The approach to environmental assessment that relies on a census of inhabitants is only one way; job analysis is another. Some evidence on Holland's predictions about person-environment interactions is reviewed, and speculations about the strength of environmental influences are discussed. The utility of the concept of proximity of an environment in understanding environmental influence is highlighted.

Holland's Theory and Person-Environment Interactions

Adam Lackey used to say that John Holland was the poor man's Charles Darwin of person-environment interactions in vocational psychology.[1] Darwin organized data and observations to classify plants and animals according to an original taxonomy with great power for directing research to questions about the relations between life forms and their environments. Similarly, Holland's organization of information about individual differences and work environments has directed research to questions about the outcomes of different combinations of persons and environments.

In the earlier presentations, Denise Gottfredson summarized the formulations of the parallel typologies Holland developed, and she described how environments can be classified by conducting a census of the types of people who inhabit them, much as botanists and environmentalists sometimes classify habitats by counting the plant and animal varieties who inhabit natural environments. Mac Richards provided a detailed account of how this

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[1] Lackey's (1975) bibliography of research related to Holland's theory provides a comprehensive guide to earlier literature on the theory and research on person-environment interactions, but it is now a decade out of date. An even older review was provided by Walsh (1973). More recent bibliographies are provided by Holland (1985a) and by Spokane (1985) who reviews research on person-environment congruence that covers much of the literature up to 1983 from a career development perspective. Even these recent reviews are already out of date (Furnham & Schaeffer, 1984, make a recent contribution) and focus on research that specifically depends on Holland's formulations (therefore excluding important work using related perspectives, e.g., Caplan, Cobb, French, Van Harrison, & Pinneau, 1975).

environmental assessment technique can be applied to environments of institutions of higher education. Richards' description of the application of the Environmental Assessment Technique to college environments entails the analysis of large environments, and the description of the application of the typology in characterizing the work environments of the United States economy to be provided presently by Jack Rayman analyzes still larger environments. Environments can, of course, be studied at many levels, and I will discuss the application of Holland's dual classification at a lower level--the level of the individual in an immediate environment.

Origins of the Environmental Classification

Holland's original environmental formulations were based on the idea that an environment's influence (or press, Murray, 1938) is transmitted by people in the environment (Linton, 1945). From this perspective, the demands, expectations, and climate of an environment result from the types of people who inhabit them. Because a method for assessing the resemblance of people to the six personality types in Holland's classification was readily accomplished by assessing them with the VPI or through the expedient of coding their major fields or vocational choices according to the typology, this was an especially fortuitious and productive perspective to adopt. Any environment could be classified just by determining the predominant personality type of its inhabitants. For instance, if people majoring in elemem-

tary education tend most to resemble the Social type, then the college environment "elementary education major" would be classified S, and this classification could be used in subsequent research to examine the consequences of a match between persons resembling each of the six types and this Social environment (Holland, 1959).

The use of a census of inhabitants to classify environments led some early critics to mistakenly characterize Holland's theory and classifications as "circular" (Osipow, 1973). They were mistaken not because they did not know the difference between a circle and a hexagon, but because they did not see that once the environmental classification was empirically derived through a census of personality types it could then be <u>independently</u> applied in new investigations. In the final analysis it is what the classification can be used for that matters, not how it was created.

Evolution of the Environmental Classification

Although Holland has continued to take the perspective that the influence of an environment is transmitted largely through its inhabitants (Holland, 1985a, p. 35), research on the characteristics of the environmental types has given psychological meaning to the typology and it is possible to use additional kinds of data about environments to assess their resemblance to the six types. For example, it is possible to say that

> The Realistic environment is charactized by the dominance of environmental demands and opportunities that entail the explicit, ordered, or systematic manipulation of objects, tools, machines, and animals. . . . These demands (and) opportunities . . . create a characteristic atmosphere that operates in the following way:
>
> 1. It stimulates people to perform realistic activities such as using machines and tools.
> 2. It rosters technical competencies and achievements.
> 3. It encourages people to see themselves as having mechanical ability and lacking ability in human relations; it encourages them to see the world in simple, tangible, and traditional terms.
> 4. It rewards people for the display of conventional values and goods, money, power, and possessions (Holland, 1985a, pp. 36-37).

This description illustrates the power of the theory incorporated in the classification. Such a description makes it possible to apply many methods to assess the resemblance of an environment to each of the six types. One could measure the activities people in the environment perform, the competencies and types of achievements the environment fosters, the self-concepts or world views of people in the environment. Perhaps most important, one could examine the kinds of behavior and values the environment rewards. In short, the theoretical descriptions of the types means that a census of inhabitants is a powerful way to

determine an environment's type, but it is only one of several ways.

I no longer agree with Holland (1985a, p. 124) that the ideal way to to classify work environments is by administering the Vocational Preference Inventory (Holland, 1958, in press; an inventory measuring the resemblance of people to the six personality types) to large representative samples of people in those environments. This direct approach is only necessary in the absence of a theory that spells out the characteristics of the environment itself in clear enough form that environments can be measured directly.

Conducting a census of inhabitants to classify an environment is akin to criterion keying in developing a psychological test. As Cronbach (1984, p. 432) noted, "criterion keying has long been popular because it does not require validated theory." By parallel reasoning, the explicit assessment of an environment by conducting a census of its inhabitants would be required in the absence of a validated theory; but in the present instance we have a theory which has been subjected to extensive test, that is highly explicit about the characteristics of environments of different types, and which makes possible the assessment of the environment independently of the people who occupy it. The direct assessment of the properties of the environment will provide strong tests of the theory and its two embedded classifica-

tions.[2]

In 1972 Holland, Viernstein, Kuo, Karweit, and Blum illustrated the use of such direct assessments to classify work environments in their extension of the classification to a large number of new occupations.[3] This accomplishment was not widely recognized as the important advance it was. The theory/classification demonstrated an ability to pull itself up by its own bootstraps: A carefully developed worker-oriented structured job analysis method--which had been developed and validated independently of the classification--provided data that could be used to extend the classification to new work environments. Subsequent tests of the classification (e.g., Gottfredson, 1977; Holland, Sorensen, Clark, Nafziger, & Blum, 1973; Nafziger, Holland, Helms, & McPartland, 1974) provided evidence of the validity of this method of classifying work environments.

Most recently, data derived from job analyses conducted by the field offices throughout the nation have been used to classify the 12,099 occupations described in the Dictionary of Occupational Titles (U.S. Department of Labor, 1977) according to the environmental classification (Gottfredson, Holland, & Ogawa, 1982).

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[2] I am indebted to Adam Lackey for this insight.

[3] A good description of how this was done can be found in Holland (1985a, pp. 124-126). Holland et al. (1972) used job analysis data based on the Position Analysis Questionnaire (PAQ; McCormick, Jeanneret, & Mecham, 1972).

Predictions about Person-Environment Interactions

The principal prediction the theory makes about person-environment interactions is that beneficial outcomes follow from congruency between the person and the environment. More specifically, a person congruent with the environment will be more often reinforced, more satisfied, and less likely to leave the environment than would an incongruent person. A congruent environment provides opportunities to display competencies the person is good at and encourages the development of skills and interests in areas related the the persons dominant skills and interests. In contrast, incongruent persons are seldom rewarded, their skills are less valued, and their interests are not encouraged by the environment. Congruence leads to stability and incongruence to change.[4]

According to the theory, congruence leads to stability because persons are reinforced for the patterns of behavior they already display, but as person-environment congruence decreases, it becomes more likely that the person-environment interactions will be dissatisfying, uncomfortable, or destructive. People will strive to resolve incongruence by changing their own behavior and perceptions, by remaking their current environments, or by leaving to seek a new and more congruent environment.

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[4]The theory makes some subsidiary predictions that involve concepts of patterning or differentiation of persons or environments that need not concern us today. They are discussed in more detail by Holland (1985a).

Some Evidence on Person-Environment Interactions

The organizer of today's symposium has asked me to describe some of the evidence bearing on the congruence hypothesis. I will briefly describe three investigations. For a more comprehensive discussion, see a review by Spokane (1985) or the discussion of the evidence by Holland (1985a).

In the first study (Gottfredson, 1981) 345 bank tellers were assessed with the Vocational Preference Inventory and asked for their vocational aspirations and other information about themselves during initial training. This information was used to assess congruence with the environmental type for this occupation (Conventional) in two ways: (a) by determining the type they most resembled according to the VPI, and (b) by coding their expressed vocational aspiration according to the typology. The workers were followed-up four months later to determine whether these new employees in a high turnover entry occupation were still employed and whether congruence with the environmental type for this occupation (Conventional) predicted job satisfaction, counterproductive behavior, and job involvement. Congruence of aspiration with the work environment had a small (.11) significant correlation with persistence in the environment, but congruence according to the VPI did not significantly predict persistence over this brief period. Congruence according to either measure was significantly and moderately correlated with a global

measure of job satisfaction (correlations were .23 and .28).[5] Conventional interests according to the VPI significantly predicted job involvement (r = .26), and artistic interests (which are incongruent with the environment) significantly predicted a measure of counterproductive behavior on the job (r = -.18).

In the best single study of congruency to date (Helms & Williams, 1973) high school boys and girls of the six types according to the Self-Directed Search (Holland, 1985b) were randomly assigned to simulations of each of the six environmental types. They reported on how compatible the activities, competencies, interests and values were with themselves. The congruence hypothesis received strong support. For example, Conventional students of both sexes found the simulated conventional environment (accountant) most compatible and the simulated artistic environment (designer) least compatible.

A third study (which is too recent to have been included in the reviews cited earlier) examined the consequences of person-work environment congruence for job satisfaction and mental health in a British sample of 82 employed adults. The workers' resemblances to the six personality types were determined by using the Self-Directed Search, and the work environment was

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[5] In addition scores on the Conventional scale of the VPI correlated .32 with job satisfaction, and scores on the Artistic scale--which measures resemblance to the type least congruent with this environment according to the Hexagonal model--correlated -.29 with job satisfaction. Other predictions relating to secondary concepts in the theory did not receive support in this research.

classified by using the Holland code for the occupation in which they were employed. Congruence correlated .24 ($p < .01$) with Langer's (1962) measure of mental health[6] and .37 ($p < .001$) with a global measure of job satisfaction.

The Strength of Environmental Influences

Little progress has yet been made in one of the most important environmental questions in the application of the theory: What determines the power of an environment? That is, it is expected that some environments exert more influence than others, but no satisfactory explanations of the sources of such differences are available. In the time remaining, I will speculate about the sources of environmental power in the hopes that I can stimulate some interest among environmental psychologists in research in this area.

Holland (1985a) has offered a set of hypotheses about the measurement of environments using the Environmental Assessment Technique that Mac Richards described in the earlier paper. Specifically, he suggests assessing (a) the consistency of the environment by determining whether the most common personality types in the environment are related according to the hexagonal model, (b) the differentiation of the environment by examining the difference in the percentage of the most and least prevalent types who inhabit it, and (c) the identity of the environment by deter-

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[6]Sign of the correlation reversed because Langer's screening device measures impairment rather than health.

mining the inverse of the number of behavior settings it contains. Environmental identity is presumed to be associated with simple structure and small size.

I will propose an alternative set of speculations about the determinants or environmental influence and explain why I think they can supplement Holland's classification to generate useful predictions and practical applications. Elsewhere (Gottfredson & Cook, 1984), I have defined the proximity of an environment as the probability that it will reward or punish behavior, and I have reviewed evidence supporting the utility of this definition. In the context of Holland's theory of person-environment interactions, a proximate environment is one in which rewards for behavior congruent with the environment or punishments for incongruent behavior occur with high probability.

A weak environment is one in which no particular set of expectations for behavior exist, it is difficult to observe behavior, or rewards and punishments are not available or are unused.

A problem with equating proximity with environmental power is that it requires the introduction of a new explanatory idea and lacks the symetry with the characterization of people that is found in Holland's directions for the measurement of environments. On the other hand, the use of the notion of proximity helps to make sense of some disparate results in tests of the congruence hypotheses. In one test of the congruence hypothesis, Nafziger, Holland, and Gottfredson (1975) studied a large sample

of college students and found congruence with major field had a statistically significant but tiny correlation with satisfaction with major field, but they found no association with satisfaction with college despite the large sample size. The college probably represents a distal environment and the major field a moderately distal environment.

In the studies of bank tellers and British workers described earlier, the correlations of congruence with satisfaction were larger--about as large as correlations in studies of congruence generally get. Workers are reasonably closely supervised, and the work environment is usually reasonably proximate.

The largest correlation I have ever seen reported between congruence and satisfaction is the .70 correlation between the congruence of VPI codes for spouses and a measure of satisfaction with spouse and marriage in a study of 125 couples (Wiggins, Moody, & Lederer, 1983). Correlations this large are so rare in the study of individuals in environments as to raise questions about their replicability, but there can be little doubt that one spouse provides a highly proximate environment for the other.[7]

More sophisticated studies of environments and their influences on people using the constructs provided by Holland's theory should contribute much to our understanding of person-environment

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[7]The results just described may also be explainable by reference to the consistency, differentiation, and identity of the environments in question; or it is possible that these three features of an environment lead to proximity. Or, none of the above may be the right answer.

interactions and the sources of power in environments. Especially important would be studies that compared the classification of diverse environments based on careful analyses of the task and reward structures they provide with environmental classification based on a census of inhabitants.

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